

AN INJECTION-MOLDING TOOL FOR A GOLF CLUB GRIP

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is related to an injection-molding tool for a golf club grip. More particularly, the present invention is related to an injection-molding tool for a golf club grip having a detachable molding member for manufacturing various structural elastic buffers of the golf club grip.

2. Description of the Related Art

Referring initially to FIG. 1, a conventional injection-molding tool 10 is connected to an injection-molding machine 1 in proper and applied to mold a golf club grip 20. Generally, the injection-molding tool 10 is provided with an axial rod 11 projected inwardly therefrom. In molding process, the axial rod 11 is extended through the golf club grip 20 to thereby form with a closed end 21 and a central aperture 22 on the golf club grip 20. The golf club grip 20 is regarded as a hollow body that provides with an accommodation for an end of a golf club shaft (not shown). Functionally, the central aperture 22 allows air-exhaustion from an interior of the golf club grip 20 in which inserting a golf club shaft. By use such a central aperture 22 of the golf club grip 20, it can facilitate an assembling process for insertion of a golf club shaft into the golf club grip.

In technical practice, the golf club grip 20 is generally made of rubber to thereby minimize vibration during striking a golf ball. To further eliminate vibration of the golf club for striking, the golf club grip 20 must provide with a structural elastic buffer. Accordingly, there is a need for improving the construction of the golf club grip 20. To this end, there is also a need for an injection-molding tool for manufacturing the structural elastic buffer of the golf club grip.

The present invention intends to provide an injection-molding tool for a golf club grip which includes a detachable molding member for manufacturing various structural elastic buffers of the golf club grip. The detachable molding member can be changed according to design choice of the structural elastic buffers in such a way to mitigate and overcome the above problem.

SUMMARY OF THE INVENTION

The primary objective of this invention is to provide an injection-molding tool for a golf club grip which includes a detachable molding member for facilitating injection-molding process. Thereby, various structural elastic buffers of the golf club grip can be manufactured conveniently.

The secondary objective of this invention is to provide the injection-

molding tool for a golf club grip which includes a detachable molding member for manufacturing various structural elastic buffers. Thereby, the detachable molding member can be changed according to design choice of the structural elastic buffers.

5 The injection-molding tool for a golf club grip in accordance with the present invention includes a base member and a detachable molding member attached thereto. The base member is provided with a screw rod extended therefrom for screw connection. The detachable molding member includes a screw hole for receiving the screw rod of the base member, and a plurality of
10 molding plugs extended therefrom and disposed around the screw hole. Each of the molding plugs has a cross-sectional configuration to thereby form a desired type of a structural elastic buffer of the golf club grip. The structural elastic buffer of the golf club grip is used to eliminate vibration of striking a golf ball.

15 Another aspect of the present invention is the base member provided with an aligning means, such as a cut portion, for positioning the injection-molding tool with respect to an injection-molding machine.

Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description and the
20 accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described in detail with reference to the accompanying drawings herein:

FIG. 1 is an exploded cross-sectional view of a conventional injection-molding tool for a golf club grip in accordance with the prior art;

FIG. 2 is an exploded perspective view of an injection-molding tool for a golf club grip in accordance with a first embodiment the present invention;

FIG. 3 is an exploded cross-sectional view of the injection-molding tool drawing out the golf club grip in accordance with the first embodiment of the present invention;

FIG. 4 is an exploded perspective view of an injection-molding tool for a golf club grip in accordance with a second embodiment the present invention;

FIG. 5 is an exploded perspective view of an injection-molding tool for a golf club grip in accordance with a third embodiment the present invention; and

FIG. 6 is an exploded cross-sectional view of the injection-molding tool drawing out the golf club grip in accordance with the third embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, there are three embodiments of the present invention shown therein, which include generally a primary base member, a secondary detachable molding member.

5 Referring to FIGS. 2 through 6, reference numerals of the first through third embodiments have applied the identical numerals of the conventional injection-molding tool. The injection-molding tools of the first through third embodiments have the similar configuration and same function as that of the conventional injection-molding tool and the detailed descriptions are
10 omitted.

Referring to FIGS. 2 and 3, an injection-molding tool 1 for a golf club grip in accordance with a first embodiment of the present invention includes a base member 12 and a detachable molding member 13 attached thereto. The injection-molding tool 1 is combined with an end of an injection-
15 molding machine 1, and inserted into a mold assembly (not shown).

Construction of the base member 12 shall be described in detail, referring again to FIGS. 2 and 3. The base member 12 is a circular plate that is preferably made of metal or the likes. The base member 12 is provided with a screw rod (axial rod) 121 extended therefrom for screw connection.
20 Preferably, the base member 12 is further provided with a cut portion 122

regarded as an aligning means. In assembling operation, the cut portion 122 is adapted to align the base member 12 with the injection-molding machine 1.

Construction of the detachable molding member 13 shall be described in detail, referring again to FIGS. 2 and 3. Preferably, the detachable molding member 13 is made of metal or the likes, and formed with a bottom seat. The bottom seat of the detachable molding member 13 includes a screw hole (assembling hole) 131 for receiving the screw rod 121 of the base member 12, and a plurality of molding plugs 132 extended therefrom. The molding plugs 132 of the detachable molding member 13 are equi-spaced and disposed around the screw hole 131. Each of the molding plugs 132 has a circular cross-sectional configuration to thereby form a desired type of a structural elastic buffer of the golf club grip 20, as shown in FIG. 3.

Referring again to FIG. 3, in assembling operation, the base member 12 is coaxially aligned with the detachable molding member 13 which can be changed according to design choice of the structural elastic buffer of the golf club grip 20. The screw rod 121 of the base member 12 has a distal end extended through the screw hole 131 of the detachable molding member 13 and located among the molding plugs 132 of the detachable molding member 13. Consequently, the assembled relationship of the base member

12 and the detachable molding member 13 is simplified. In molding process, an elastic material is injected into the mold assembly (not shown) through the injection-molding tool 10 so that the golf club grip 20 is molded.

Referring again to FIG. 2, in disassembling and reassembling operation, it is convenient that the base member 12 is tuned with respect to the detachable molding member 13 so that the screw rod 121 is released from the screw hole 131, or mounted thereto.

After molding, the injection-molding tool 10 and the golf club grip 20 are drawn out from the mold assembly (not shown) and thus a molded product of the golf club grip 20 is removed from the injection-molding tool 10. A finished product of the golf club grip 20 can be carried out in following steps of a finishing process.

Construction of the molded product of the golf club grip 20 shall be described in detail, referring again to FIG. 3. Preferably, the golf club grip 20 is made of rubber, elastic material or the likes. The golf club grip 20 is a tapered hollow body that includes a closed end 21, a central aperture 22 and a plurality of buffer through-holes 23. The central aperture 22 is arranged on the closed end 21 and provided with a passage connecting to an interior of the golf club grip 20. Also, the buffer through-holes 23 are arranged on the closed end 21 to thereby attenuate vibration for striking, and equi-spaced

around the central aperture 22. When a user holds the golf club grip 20 and strikes a golf ball (not shown), a minimized vibration can transmit to the user's hand.

Turning to FIG. 4, an injection-molding tool 1 for a golf club grip in accordance with a second embodiment of the present invention includes a
5 base member 12 and a detachable molding member 13 attached thereto. In comparison with the first embodiment, each of the molding plugs 132' of the second embodiment has an oval cross-sectional configuration. The oval cross-sectional configuration of the buffer through-hole is able to provide
10 with a greater deformation for attenuating vibration.

Referring further to FIGS. 5 and 6, an injection-molding tool 1 for a golf club grip in accordance with a third embodiment of the present invention includes a base member 12 and a detachable molding member 13 attached thereto. In comparison with the first embodiment, the base member
15 12 of the third embodiment further includes an axial rod 121', a cut portion 122 and a thread portion 123. Correspondingly, the bottom seat of the detachable molding member 13 includes an assembling hole 131' adapted to receive the axial rod 121' of the base member 12, and a thread portion 133 for screw connection with the thread portion 123 of the base member 12.
20 Preferably, the thread portion 123 is formed on an outer circumferencel of

the base member 12. Also preferably, the thread portion 133 is formed on an outer circumferential wall of the detachable molding member 13.

Referring again to FIG. 6, in assembling operation, the thread portion 123 of the base member 12 is engaged with the thread portion 133 of the detachable molding member 13 so that the assembled relationship of the base member 12 and the detachable molding member 13 are assured. The axial rod 121' of the base member 12 has a distal end extended through the assembling hole 131' of the detachable molding member 13 and located among the molding plugs 132 of the detachable molding member 13.

Although the invention has been described in detail with reference to its presently preferred embodiment, it will be understood by one of ordinary skill in the art that various modifications can be made without departing from the spirit and the scope of the invention, as set forth in the appended claims.